

## **AMENDMENTS TO THE CLAIMS**

**This listing of claims will replace all prior versions and listings of claims in the application:**

### **LISTING OF CLAIMS:**

1. (currently amended): A motor drive control apparatus comprising a voltage detecting section for detecting phase voltage or line voltage of a brushless DC motor having three or more phases, a current detecting section for detecting motor current, and a rotor position estimating section for calculating electrical angle of the rotor of the motor, wherein the rotor position estimating section comprising;

a back-EMF detecting section for each phase for calculating a back-EMF of each phase of the motor from the phase voltage or line voltage, the motor current, the winding resistance value and winding inductance value, of the motor,

an angular speed calculating section which detects a back-EMF which becomes a maximum value in the back-EMF of each phase, and which calculates angular speed  $\omega$  of a rotor of the motor,

and a an electrical angle calculating-rotor position-estimating section for estimating calculating electrical angle  $\theta$  of the rotor from the angular speed  $\omega$ .

2. (currently amended): A motor drive control apparatus according to claim 1, further comprising a rotor position detecting sensor wherein the rotor position-estimating section includes a rotor position-detecting-section for detecting electrical angles  $\theta$  of the rotor of the motor in a discrete manner, and the calculated electrical angle is corrected by the detected electrical angles  $\theta_0$ .

3. (currently amended): A motor drive control apparatus according to claim 1 or 2, wherein the rotor position estimating section comprises an error resistance calculating section which calculates a resistance change amount  $\Delta R$  caused by temperature change of the winding

resistance based on an error  $\Delta\theta$  between the calculated electrical angle  $\theta$  and the detected electrical angles  $\theta$ .

4. (currently amended): A motor drive control apparatus according to claim 3, further comprising a changed temperature calculating section for calculating ~~wherein the rotor position estimating section calculates~~ a temperature change amount  $\Delta T$  of the winding based on the resistance change amount  $\Delta R$ .

5. (currently amended): A motor drive control apparatus according to claim 3 or 4, wherein the rotor position estimating section corrects the calculated electrical angle  $\theta$  of the rotor by using the temperature change amount  $\Delta T$  or the resistance change amount  $\Delta R$ .

6. (currently amended): A motor drive control apparatus according to claim 1, further including a low pass filter which is disposed in an input ~~or an output of the current detecting of the angular~~ speed calculating section.

7. (original): An electric power steering apparatus using the motor drive control apparatus according to any one of claims 1 to 6.